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Job No.: CTCE/BBMP/W.No.15/KRIDL/GSB-1/GR/2014-15 Date : 11.10.2014

GRADATION FOR GSB-I (CLOSE GRADED)
IS: 2720 (Part 4)

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014

Date of Testing : 11.10.2014

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 24365

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	935	935	3.84	96.16	80-100
26.50	5295	6230	25.57	74.43	55-90
9.50	3815	10045	41.23	58.77	35-65
4.75	3650	13695	56.21	43.79	25-55
2.36	2325	16020	65.75	34.25	20-40
0.425	4595	20615	84.61	15.39	10-25
0.075	3000	23615	96.92	3.08	3-10
PAN	750				
Total	24365				

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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Job No.: CTCE/BBMP/W.No.15/KRIDL/GSB-1/GR/2014-15 Date : 11.10.2014

GRADATION FOR GSB-I (CLOSE GRADED)
IS: 2720 (Part 4)

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014

Date of Testing : 11.10.2014

Sample Source : GSB Mix Plant Bangalore. **Oven Dry Wt (gm) :** 24415

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	0	100
53.0	910	910	3.73	96.27	80-100
26.50	5285	6195	25.37	74.63	55-90
9.50	3650	9845	40.32	59.68	35-65
4.75	3585	13430	55.01	44.99	25-55
2.36	2450	15880	65.04	34.96	20-40
0.425	4685	20565	84.23	15.77	10-25
0.075	3050	23615	96.72	3.28	3-10
PAN	800				
Total	24415				

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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Job No.: CTCE/BBMP/W.No.15/KRIDL/GSB-1/AL/2014-15 Date : 11.10.2014

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 5)

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014

Date of Testing : 11.10.2014

As per MORTH Table : 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.00	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CTCE/BBMP/W.No.15/KRIDL/GSB-1/AL/2014-15 Date : 11.10.2014

ATTERBERG LIMITS TEST FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 5)

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, Bangalore.

Name of work : Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014

Date of Testing : 11.10.2014

As per MORTH Table : 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CTCE/BBMP/W.No.15/KRIDL/BM(QB)/2014-15 21.10.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	21.10.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	66	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	298	Min. 220

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Job No: CTCE/BBMP/W.No.15/KRIDL/BM/AIV/2014-15

21.10.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	21.10.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	21.82	22.02	
	100* (W_2/W_1)%			**21.92**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note:

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Job No: CTCE/BBMP/W.No.15/KRIDL/BM/Shape.T/2014-15 : 21.10.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	: BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Bituminious Macadum
Date of Testing	: 21.10.2014

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Flakiness Index = **11.05%**

Elongation Index = **13.25%**

Result : Combined Flakiness & Elongation index **24.30%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

Note:

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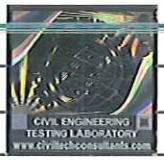
Job No: CTCE/BBMP/W.No.15/KRIDL/BM/Stripping/2014-15 23.10.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Type of Mix	Bituminous Macadam
Date of Testing	23.10.2014



Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2	3.30	96.70
2	3.3		
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

Note:

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Job No: CTCE/BBMP/W.No.15/KRIDL/BM/Sp_Wa/2014-15

23.10.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Source / Location	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	23.10.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	W_1 g	2016	2019	2021	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1266	1269	1271	
4	Weight of saturated surface dry aggregate in air	W_3 g	2010	2011	2012	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	744	742	741	
6	Weight of oven dried aggregate	W_4 g	1999	2000	1996	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.687	2.695	2.694	2.690
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.727	2.736	2.753	2.740
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.55%	0.55%	0.80%	0.68%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

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Job No: CTCE/BBMP/W.No.15/KRIDL/BM/Agg.G/2014-15 23.10.2014

Aggregate Gradation Test
IS : 2386 Part I

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	23.10.2014

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	360	6.92	6.92	93.08	90-100	
13.2	1685	32.40	39.33	60.67	56-88	
4.75	1480	28.46	67.79	32.21	16-36	
2.36	965	18.56	86.35	13.65	4-19	
0.3	385	7.40	93.75	6.25	2-10	
0.075	145	2.79	96.54	3.46	0-8	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	290	5.47	5.47	94.53	90-100	
13.2	1785	33.68	39.15	60.85	56-88	
4.75	1520	28.68	67.83	32.17	16-36	
2.36	890	16.79	84.62	15.38	4-19	
0.3	415	7.83	92.45	7.55	2-10	
0.075	155	2.92	95.38	4.62	0-8	

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC(QB)/2014-15

22.10.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	22.10.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	66	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	47	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	302	Min. 220

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/AIV/2014-15

22.10.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	22.10.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	380	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.58	20.79	20.68

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/AIV/2014-15

22.10.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	22.10.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	88	89	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.62	22.82	22.72

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Shape_T/2014-15 : 22.10.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	: BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 22.10.2014

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Result : Flakiness Index = **11.52%**

Elongation Index = **13.65%**

Result : Combined Flakiness & Elongation index **25.17%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Shape_T/2014-15 : 22.10.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	: BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 22.10.2014

Result : Flakiness Index = **12.35%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index **26.25%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Stripping/2014-15 24.10.2014

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	24.10.2014

Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

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Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.15/KRIDLS/SDBC/Sp_Wa/2014-15

24.10.2014

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	24.10.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2024	2016	2025	
2	Weight of basket suspended in water	W_2 g	755	2020	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1261	1270	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2019	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	746	758	748	
6	Weight of oven dried aggregate	W_4 g	2001	2003	2006	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.682	2.642	2.682	2.669
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.734	2.699	2.726	2.720
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.70%	0.80%	0.60%	0.70%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Bit/2014-15 24.10.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SAMPLE I/D	Kaliyamma Temple Ward No.15, BBMP, Bangalore.
DATE OF TESTING	24.10.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	25.50
7. Bitumen content in %	5.00	5.10
8. Average	**5.05**	

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Bit/2014-15 24.10.2014

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SAMPLE I/D	Kaliyamma Temple Ward No.15, BBMP, Bangalore.
DATE OF TESTING	24.10.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	25.35	5.34	5.34	94.66	90-100
4.75	260.3	54.80	60.14	39.86	35-51
2.36	52.36	11.02	71.16	28.84	24-39
1.18	35.25	7.42	78.58	21.42	15-30
0.3	36.32	7.65	86.23	13.77	9-19
0.075	30.22	6.36	92.59	7.41	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	35.62	7.51	7.51	92.49	90-100
4.75	260.3	54.86	62.36	37.64	35-51
2.36	50.26	10.59	72.96	27.04	24-39
1.18	32.25	6.80	79.75	20.25	15-30
0.3	32.26	6.80	86.55	13.45	9-19
0.075	34.25	7.22	93.77	6.23	3-8

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Bit/2014-15 24.10.2014

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AS per IRC:SP:-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SAMPLE I/D	Kaliyamma Temple Ward No.15, BBMP, Bangalore.
DATE OF TESTING	24.10.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/Bit/2014-15 24.10.2014

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CLIENT	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
SAMPLE I/D	Kaliyamma Temple Ward No.15, BBMP, Bangalore.
DATE OF TESTING	24.10.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.35	5.55	5.55	94.45	90-100
4.75	265.3	55.85	61.40	38.60	35-51
2.36	53.31	11.22	72.62	27.38	24-39
1.18	36.33	7.65	80.27	19.73	15-30
0.3	35.12	7.39	87.67	12.33	9-19
0.075	31.22	6.57	94.24	5.76	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	28.56	6.03	6.03	93.97	90-100
4.75	253.6	53.50	59.53	40.47	35-51
2.36	51.22	10.81	70.33	29.67	24-39
1.18	33.12	6.99	77.32	22.68	15-30
0.3	33.12	6.99	84.31	15.69	9-19
0.075	39.65	8.36	92.67	7.33	3-8

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Job No.: CTCE/BBMP/W.No.15/KRIDL/SDBC/AGG/2014-15

24.10.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	24.10.2014

Total Weight of Sample: **5200** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	350	6.7	6.73	93.27	90-100	
4.75	2585	49.7	56.44	43.56	35-51	
2.36	685	13.2	69.62	30.38	24-39	
1.18	485	9.3	78.94	21.06	15-30	
0.3	410	7.9	86.83	13.17	9-19	
0.075	340	6.5	93.37	6.63	3-8	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	395	7.5	7.45	92.55	90-100	
4.75	2650	50.0	57.45	42.55	35-51	
2.36	440	8.3	65.75	34.25	24-39	
1.18	565	10.7	76.42	23.58	15-30	
0.3	395	7.5	83.87	16.13	9-19	
0.075	485	9.2	93.02	6.98	3-8	

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Note:

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24.10.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements & Asphalting of S. Ramesh road to Kaliyamma Temple & Temple Opp. Road in Dasarahalli Ward No.15, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2014-15 Dated: 06.10.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	24.10.2014

Total Weight of Sample: **5100** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	325	6.4	6.37	93.63	90-100	
4.75	2610	51.2	57.55	42.45	35-51	
2.36	690	13.5	71.08	28.92	24-39	
1.18	475	9.3	80.39	19.61	15-30	
0.3	425	8.3	88.73	11.27	9-19	
0.075	325	6.4	95.10	4.90	3-8	

Total Weight of Sample: **5150** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	365	7.1	7.09	92.91	90-100	
4.75	2515	48.8	55.92	44.08	35-51	
2.36	450	8.7	64.66	35.34	24-39	
1.18	585	11.4	76.02	23.98	15-30	
0.3	425	8.3	84.27	15.73	9-19	
0.075	490	9.5	93.79	6.21	3-8	

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬಾಗಲಗುಂಟೆ, ಬಿಬಿಎಂಪಿ
ಬೆಂಗಳೂರು